

CASE REPORT

Transient hypercalcemia in a patient with SAPHO syndrome

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Abstract

We here report a case of SAPHO (synovitis-acne-pustulosis-hyperostosis-osteitis) syndrome with hypercalcemia. The patient was diagnosed with SAPHO syndrome at the age of 54, because he exhibited osteitis and hyperostosis around the sternoclavicular joints and the temporomandibular joints bilaterally and had past medical history of palmoplantar pustulosis. At the age of 67, he exhibited appetite loss and nausea. Corrected serum calcium was 13.0 mg/dl. Adequate hydration was recommended, and his calcium levels returned to the normal range without any medical treatment. Although speculative, his hypercalcemia was considered to be caused by an increased bone activity in SAPHO syndrome. This is the first report describing transient hypercalcemia in a patient with SAPHO syndrome.

KEYWORDS

calcium, hyperostosis, osteitis, SAPHO syndrome

1 | INTRODUCTION

SAPHO (synovitis-acne-pustulosis-hyperostosis-osteitis) syndrome was first described by Chamot et al. in 1987.¹ It is characterized by a combination of osteoarticular lesions and dermatological manifestations. A wide range of manifestations in other organs has also been reported to be associated with this rare disease, including inflammatory bowel disease, pleural effusion, and malignant tumors.²⁻⁴ Thus far, hypercalcemia has not been described as a part of the clinical spectrum of this entity. We report a case of a patient with SAPHO syndrome who presented with transient hypercalcemia.

2 | CASE PRESENTATION

A 54-year-old man complained of the prolonged anterior chest pain and the difficulty in opening his mouth and visited the departments of oral surgery and orthopedic surgery in our hospital in 2005. He had past medical history of palmoplantar pustulosis. Physical and radiological examinations revealed osteitis and

hyperostosis around the sternoclavicular joints and the temporomandibular joints bilaterally. He was diagnosed with SAPHO syndrome. Nonsteroidal anti-inflammatory drugs were prescribed for pain relief, and his symptoms were under control. In July 2018, he felt appetite loss and nausea. His medication at that time was acetaminophen 400 mg daily. Because the symptoms continued, he visited a clinic nearby in the middle of August. Hypercalcemia (corrected serum calcium: 13.0 mg/dl) and an elevation in C-reactive protein (18.00 mg/dl) were found, and he was referred to our hospital one week later. Physical examination revealed no remarkable findings, but laboratory tests found the following results: corrected serum calcium 12.7 mg/dl, phosphorus 3.9 mg/dl, intact parathyroid hormone (PTH) <3 pg/ml, and C-reactive protein 9.68 mg/dl (see detail in Table 1). Fractional excretion of calcium in the urine was 1.2%. His hypercalcemia was not severe, and we recommended adequate hydration. Ten days later, he received bone scintigraphy, which showed the positive signals in the anterior chest and the mandibular bone (Figure 1). Additional data, including PTH-related protein <1.1 pmol/L and 1 α , 25-dihydroxyvitamin D 24 pg/ml, were obtained. By ruling out possible hypercalcemic

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TABLE 1 Laboratory data

White blood cells (/μl)	10,400
Red blood cells (×10 ⁴ /μl)	385
Hemoglobin (g/dl)	11.7
Platelets (×10 ⁴ /μl)	51.8
Total protein (g/dl)	7.2
Albumin (g/dl)	3.1
Urea nitrogen (mg/dl)	13.1
Creatinine (mg/dl)	1.21
Sodium (mEq/L)	137
Potassium (mEq/L)	4.3
Chloride (mEq/L)	95
Calcium (mg/dL)	11.8
Phosphorus (mg/dl)	3.9
Lactate dehydrogenase (IU/L)	112
Aspartate aminotransferase (IU/L)	18
Alanine aminotransferase (IU/L)	6
γ-Glutamyl transpeptidase (IU/L)	25
Alkaline phosphatase (IU/L)	241
Creatine kinase (IU/L)	20
C-reactive protein (mg/dl)	9.68
Magnesium (mg/dl)	1.0
Intact-PTH (pg/ml)	<3
PTH-related protein (pmol/L)	<1.1
1α, 25-Dihydroxyvitamin D (pg/ml)	24
Angiotensin-converting enzyme (IU/L)	17.1
Fractional excretion of calcium (%)	1.2

disorders, we considered that his hypercalcemia was caused by an increase in bone resorption in SAPHO syndrome. However, his calcium levels, as well as C-reactive protein levels, gradually returned to the normal range within next 2 weeks without any medical treatment. After this episode, he never exhibits hypercalcemia, and his appetite also remains normal.

3 | DISCUSSION

Synovitis-acne-pustulosis-hyperostosis-osteitis syndrome is a rare disease with marked clinical and radiological heterogeneity. For example, the anterior chest pain is seen in 65–90% of the patients, whereas the involvement of mandibular area is only 1–10%.⁵ Approximately 20% of patients with SAPHO syndrome do not develop skin lesions.⁵ Moreover, osteoarticular and dermatological manifestations do not necessarily occur at the same time. Indeed, the latency period of more than 10 years has been documented.⁶ Such a variety of disease spectrum makes the diagnosis of SAPHO syndrome difficult. However, the patient in the present case exhibited osteitis and hyperostosis in the anterior chest wall and the mandibular bone and had past history of palmoplantar pustulosis. In

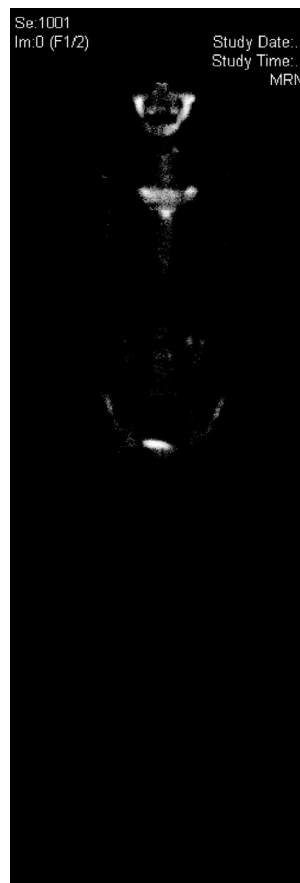


FIGURE 1 Bone scintigraphy. The positive signals were detectable in the anterior chest wall and the mandibular bone

addition, the images of bone scintigraphy were typical for the disease. Thus, the diagnosis of SAPHO syndrome in the present case seems solid.

Moderate and transient hypercalcemia was seen in the present case. It was PTH-independent and unrelated to medications. PTH-dependent hypercalcemia includes primary hyperparathyroidism and familial hypocalciuric hypercalcemia, whereas PTH-independent one consists of PTH-related protein-producing tumors, chronic granulomatosis producing active vitamin D, and bone metastasis of malignant tumors.⁷ Hyperthyroidism and adrenal insufficiency are also known to cause hypercalcemia. These conditions were excluded, and we considered that the increased activity of bone turnover in SAPHO syndrome was likely to be the cause of hypercalcemia. However, the relationship between hypercalcemia and increased bone turnover in SAPHO syndrome was speculative, because no data regarding bone metabolism markers, such as tartrate-resistant acid phosphatase-5b, were available in this case. In addition, although C-reactive protein level was elevated and bone scintigraphy showed positive signals, tenderness on the temporomandibular joints and/or the sternoclavicular joints was not obvious, suggesting that the disease activity of SAPHO syndrome might not be high. Nevertheless, to the best of our knowledge, this is the first report describing a complication of hypercalcemia in a patient with SAPHO syndrome. Serum

calcium levels in patients with SAPHO syndrome have not been investigated in detail in previous studies. Accumulation of the data is desired.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

ETHICAL APPROVAL

Ethical approval by the institutional review board was not required in the authors' institution for this case report.

INFORMED CONSENT

The patient provided informed consent for this case report.

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